

IV. Remarks.

The Examiner entered the following rejections in the office action.

1. Claims 1-10, 12-16, and 18-24 are rejected under 35 USC 102(b) as being anticipated by Warmuth (US# 4911416).

Applicant respectfully disagrees with the Examiner's conclusion as to amended claim 1. Claim 6, 10, 13, 16, 20 are cancelled without prejudice or disclaimer of subject matter.

Egg shaped, as argued by the Examiner, does not equate to elliptical in the case of the instant invention. Warmuth does not teach that egg shaped equates to elliptical. Elliptical has a particular meaning, namely, a geometric form having two foci, F and F' , and two directrices, DH and $D'H'$. For a given point P on the curve $PF + PF' = \text{constant} = 2a$, where " a " is $\frac{1}{2}$ of the length of the major axis. The distance to the foci from the center of the ellipse is less than " a ". The distance from the center of the ellipse to each of the directrices is great than " a ". See attached pages 2-32 and 2-33 of Marks' Standard Handbook for Mechanical Engineers.

Instead, elliptical is particularly claimed in order to negate the elliptical stress distribution caused by the tilted connection of sleeve (10) to end member (11). An egg shaped piston would not give a substantially circular stress distribution as claimed nor does Warmuth teach this result.

Fig. 2(a) and Fig. 2(b) of the application disclose that surface 160 only comprises an elliptical cross-section along the piston major axis A-A. This feature is not taught by Warmuth. Warmuth teaches an egg shaped piston with an axis of the egg shape form apparently offset from the axis (75) of the piston (76), col. 5, lines 4-12. Further it appears that the egg shaped form has variable diameters depending upon where the measurement is taken, see Fig. 2. Again, this configuration would not result in a circular stress distribution, nor does Warmuth disclose such a result.

Further, Warmuth does not teach a particular cooperative relationship between an angle of end cap (13) and the ratio of the major and minor axis of the ellipsoidal form of the egg shaped portion, namely an angle in the range of approximately 7° to 20° and a ratio of approximately 1.08 which results in a circular stress distribution.

Applicant requests that this rejection be withdrawn.

2. Claims 1-24 are rejected under 35 USC 102(b) as being anticipated by Goshima (US#4854557).

As to amended claim 1, Goshima discloses a sleeve (11) connected between piston (12) and end cap (13), col. 3, lines 25-33. Piston (12) and end cap (13) are aligned along axis X-X, col. 3, lines 33-36 and col. 3, lines 45-52. Fig. 4c reveals protrusion (12b) extending from one side of piston (12)

with respect to axis X-X, which may be ellipsoidal in form, col. 5, lines 50-55. The center of protrusion (12b) is not aligned with axis X-X.

Goshima does not teach a rolling lobe as claimed. Goshima only teaches that the portion of the sleeve 11 riding on protrusion 12b can not substantially deform except when the piston and end cap are extremely separated from each other so as not to cause slackening of the air sleeve, col. 5, lines 20-30. This means the sleeve can not substantially deform in compression when a rolling lobe is formed, hence air sleeve 11 can not form a rolling lobe on protrusion 12b as claimed. Nor is a rolling lobe illustrated in Fig. 4a.

Further, Goshima does not disclose a side load compensating air spring. End cap (13) in Goshima is not disposed at an angle to an air spring axis when piston (12) and end cap (13) are not loaded. Goshima does not teach a particular cooperative relationship between an angle of end cap (13) and the ratio of the major and minor axis of the ellipsoidal form of protrusion 12b, namely an angle in the range of approximately 7° to 20° and a ratio of approximately 1.08 which results in a circular stress distribution. Goshima only teaches that "the tensile stress acting in the turned up portion of the air sleeve 11 can sufficiently be uniformized in the circumferential direction", col. 5, lines 44-50, but, the meaning of the "uniformization" is not disclosed.

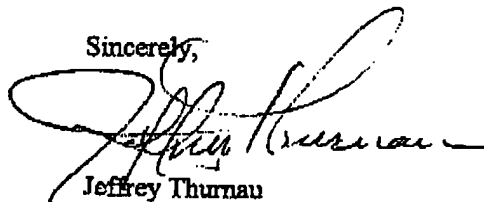
Applicant respectfully requests withdrawal of the rejection as to all claims.

V. Fees.

Any fees payable for this amendment including the request for extension of time can be deducted from deposit account 07-0475 in the name of The Gates Corporation.

Thank you for your attention to this case. If any questions arise, please call at the number below.

Sincerely,



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